

Blood thinning drugs before removing a clot in stroke patients improves mortality rates at 90 days, study finds

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A new systematic review and meta-analysis by an international group of researchers has found giving a blood thinning drug (thrombolysis) before

treatment to remove a clot from the brain—known as thrombectomy procedure—to stroke patients, improved mortality rates at 90 days, compared with just thrombectomy procedure alone.

The research led by the University of Bristol and National University of Singapore, in collaboration with researchers in the U.K., Germany, Belgium, Sweden and Taiwan, is published in the *Journal of NeuroInterventional Surgery*.

Mechanical thrombectomy is an [effective treatment](#) for patients with an [acute stroke](#) caused by a clot ([ischemic stroke](#)) from basilar artery occlusion, which occurs when the basilar artery, the [main artery](#) at the back portion of the brain, is blocked. Administering a bridging blood thinning drug before removing a clot is still recommended for most patients with large-vessel occlusion pending results of randomized controlled trials.

However, in patients with basilar artery occlusion who undergo [mechanical thrombectomy](#), it is not clear whether or not prior treatment with a bridging blood thinning drug is beneficial. The research team wanted to compare the clinical outcomes of mechanical thrombectomy, with and without bridging intravenous thrombolysis, in acute basilar artery occlusion through a [systematic review](#) and meta-analysis of the current literature.

The review looked at 51 prior studies and three studies were eligible to be included in the study's meta-analysis. The three studies compared bridging intravenous thrombolysis with direct mechanical thrombectomy in 1,096 patients with stroke due to basilar artery occlusion.

Of the total 1,096 patients, 749 were male (68.3%) and 347 were female (31.7%). 362 patients underwent mechanical thrombectomy with bridging intravenous thrombolysis, while 734 patients underwent direct

mechanical thrombectomy.

The study found that in patients with [acute ischemic stroke](#) due to basilar artery occlusion, compared with direct mechanical thrombectomy, bridging intravenous thrombolysis is associated with lower [mortality rates](#) at 90 days without an increased risk of bleeding. Bridging intravenous thrombolysis is also associated with better functional outcomes particularly in patients with large atherosclerosis, which is the build-up of fatty material inside arteries. It's a potentially serious condition that causes most heart attacks and strokes but often goes unnoticed.

Keng Siang Lee, a medical student and the study's lead author from Bristol Medical School at the University of Bristol, said, "Our review has found in patients with acute ischemic stroke due to basilar artery occlusion, who present up to four and a half hours from the start of their stroke, bridging intravenous thrombolysis could improve their 90 day death rate.

"If our review is supported in future randomized controlled studies, it could become the standard treatment for stroke patients."

The research team suggest future randomized controlled trials are needed to validate whether bridging intravenous thrombolysis does provide benefits over direct mechanical thrombectomy in stroke patients with basilar artery occlusion.

More information: Keng Siang Lee et al, Bridging thrombolysis improves survival rates at 90 days compared with direct mechanical thrombectomy alone in acute ischemic stroke due to basilar artery occlusion: a systematic review and meta-analysis of 1096 patients, *Journal of NeuroInterventional Surgery* (2022). [DOI: 10.1136/jnis-2022-019510](#)

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